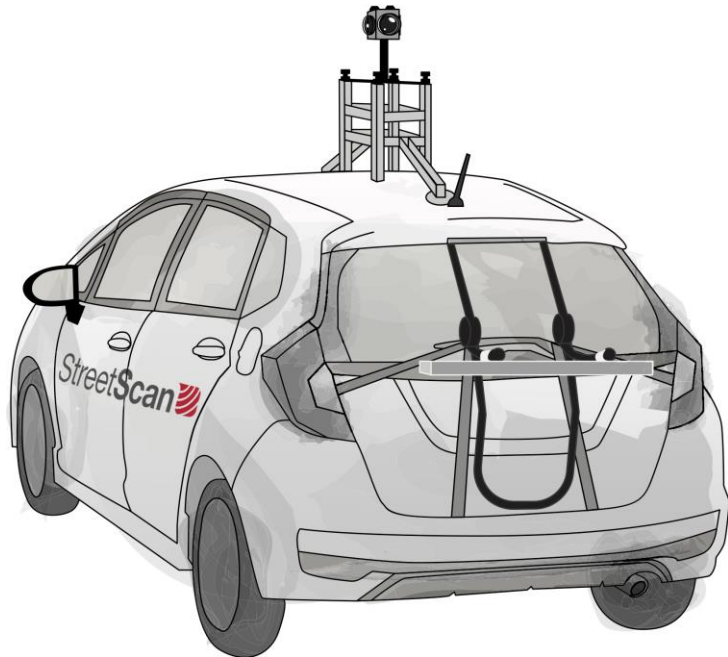
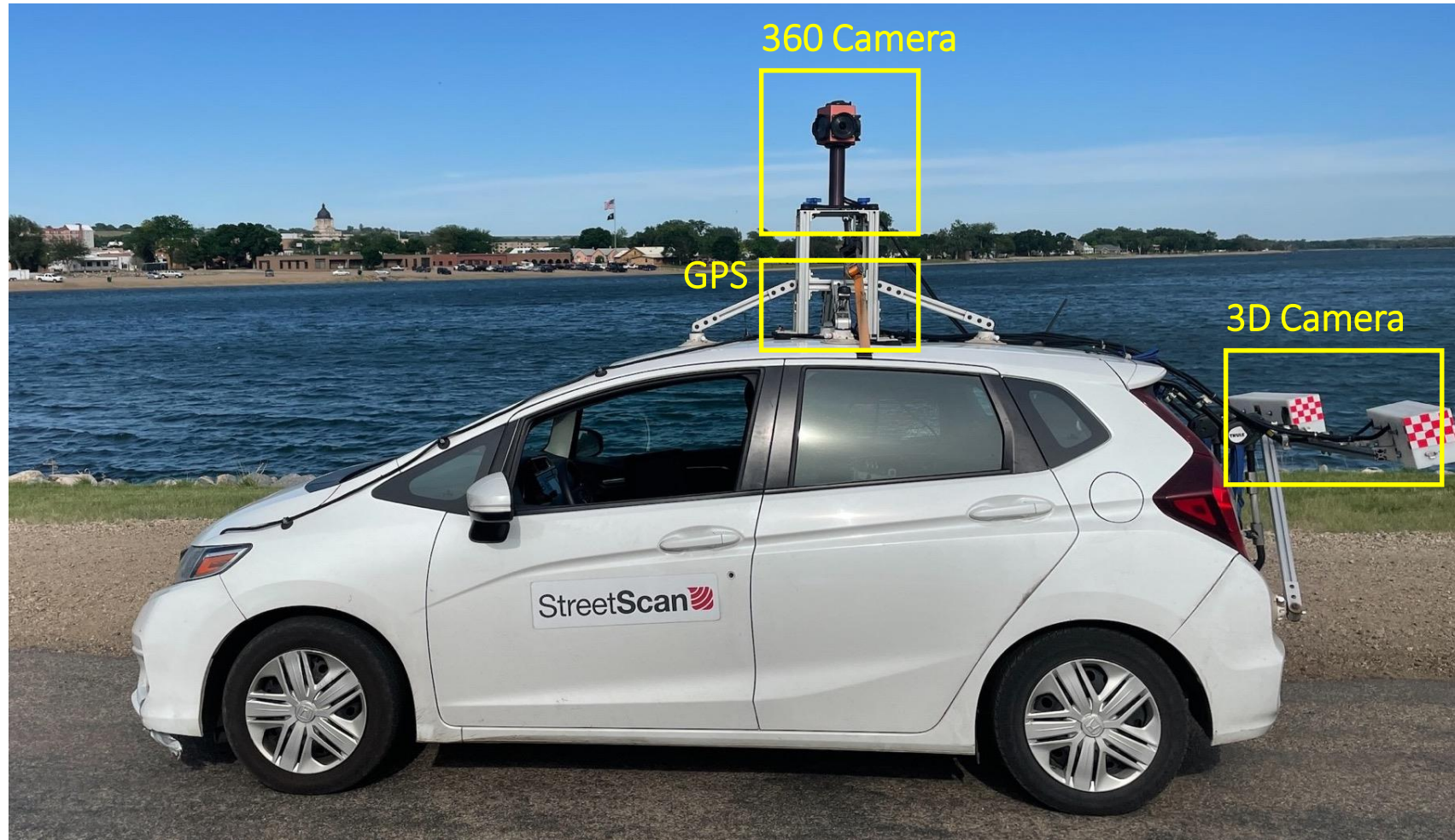


Pavement Management and Paving Plan Amherst, MA

04/21/2022



Data Collection



Data Processing



PCI Example: 85-100, Excellent Condition



PCI Range	Condition
85 – 100	Excellent
70 – 85	Good
55 – 70	Fair
40 – 55	Poor
25 – 40	Very poor
10 – 25	Serious
0 – 10	Failed



PCI Example: 70-85, Good Condition



PCI Range	Condition
85 – 100	Excellent
70 – 85	Good
55 – 70	Fair
40 – 55	Poor
25 – 40	Very poor
10 – 25	Serious
0 – 10	Failed



PCI Example: 25-40, Very Poor Condition



PCI Range	Condition
85 – 100	Excellent
70 – 85	Good
55 – 70	Fair
40 – 55	Poor
25 – 40	Very poor
10 – 25	Serious
0 – 10	Failed



PCI Example: 0-10, Failed Condition

PCI Range	Condition
85 – 100	Excellent
70 – 85	Good
55 – 70	Fair
40 – 55	Poor
25 – 40	Very poor
10 – 25	Serious
0 – 10	Failed





Results for Pavement Condition

PCI Map

Pavement Condition Index (PCI)



Distress Map

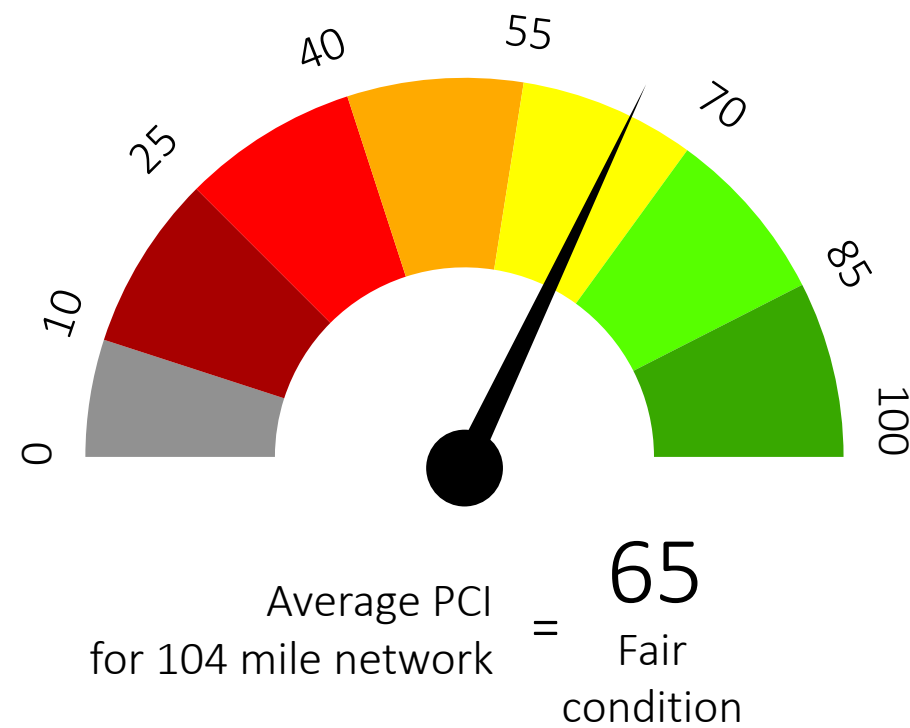
Pavement Distresses

- 🚧 Alligator Cracks
- Longitudinal & Transverse Cracks
- 🏠 Block Cracking
- ⚡ Crack Seal
- ★ Bumps & Surface Distortions
- 🚧 Potholes
- ✖ Patches

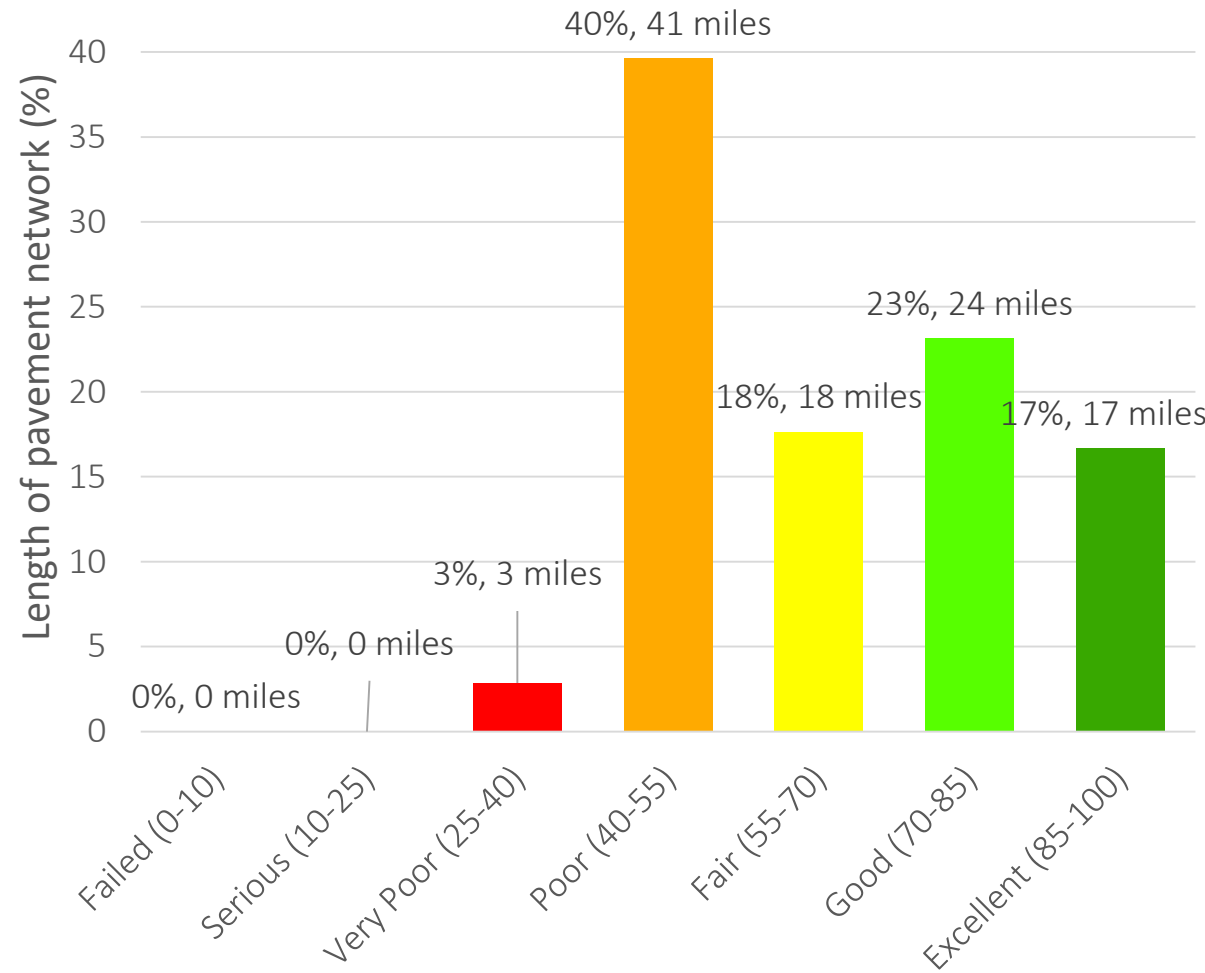
Pavement Condition Index (PCI) Table

Row	Street Name	From Street Name	To Street Name	Length	PCI
1	UNIVERSITY DR	AMITY ST & N UNIVERSITY DR	NORTHAMPTON RD	821 ft	74
2	Concord Way	LINDEN RIDGE RD	CONCORD WAY	212 ft	89
3	Kestrel Ln	END	HOP BROOK RD	548 ft	68
4	Hop Brook Rd	OLD FARM RD	KESTREL LN	2,154 ft	62
5	MOUNTAIN VIEW CIR	WEST ST	END	452 ft	75
6	BLACKBERRY LN	GRANTWOOD DR	SACCO DR	462 ft	46
7	FARVIEW WAY	FAIRFIELD ST	BERKSHIRE TER	266 ft	95
8	WEST ST	W BAY RD	LANNON LN	470 ft	80
9	HEATHERSTONE RD	BIRCHCROFF LN	PEBBLE RIDGE RD	411 ft	56
10	CHESTNUT ST	COTTAGE ST	EAMES PL	747 ft	73
11	THISTLE LN	STONY HILL RD	END	310 ft	38
⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮
732	PELHAM RD	POET'S CORNER	THAYER ST	588 ft	98

2022 PCI Stats



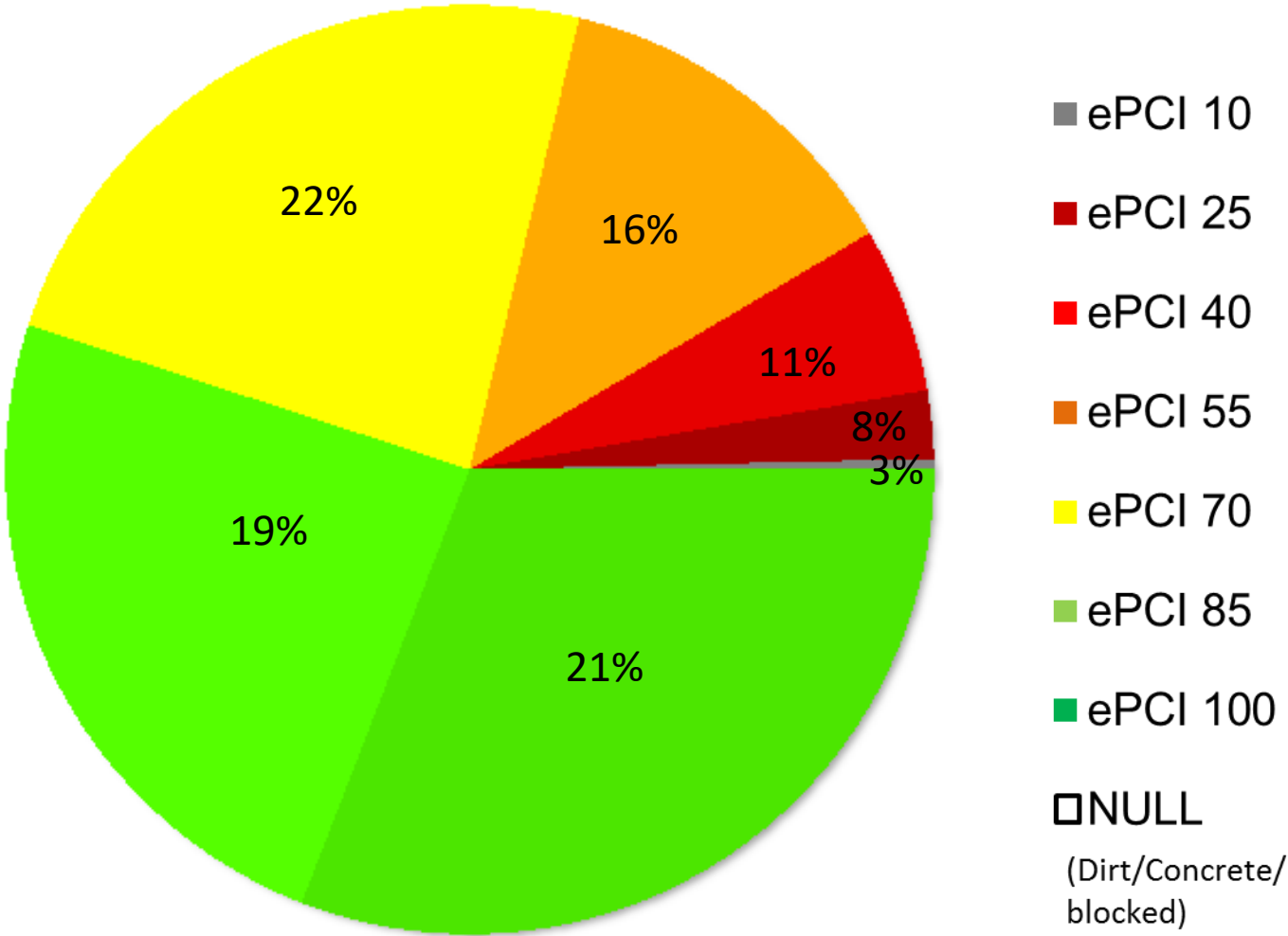
Total Estimated
Backlog: \$48,910,405

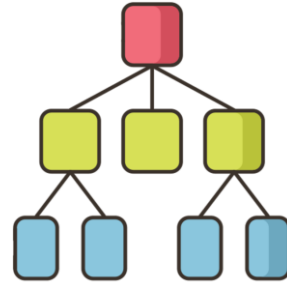


2018 PCI Stats

Average PCI	63
% < Critical ePCI (55)	28%
% > Critical ePCI (55)	72%

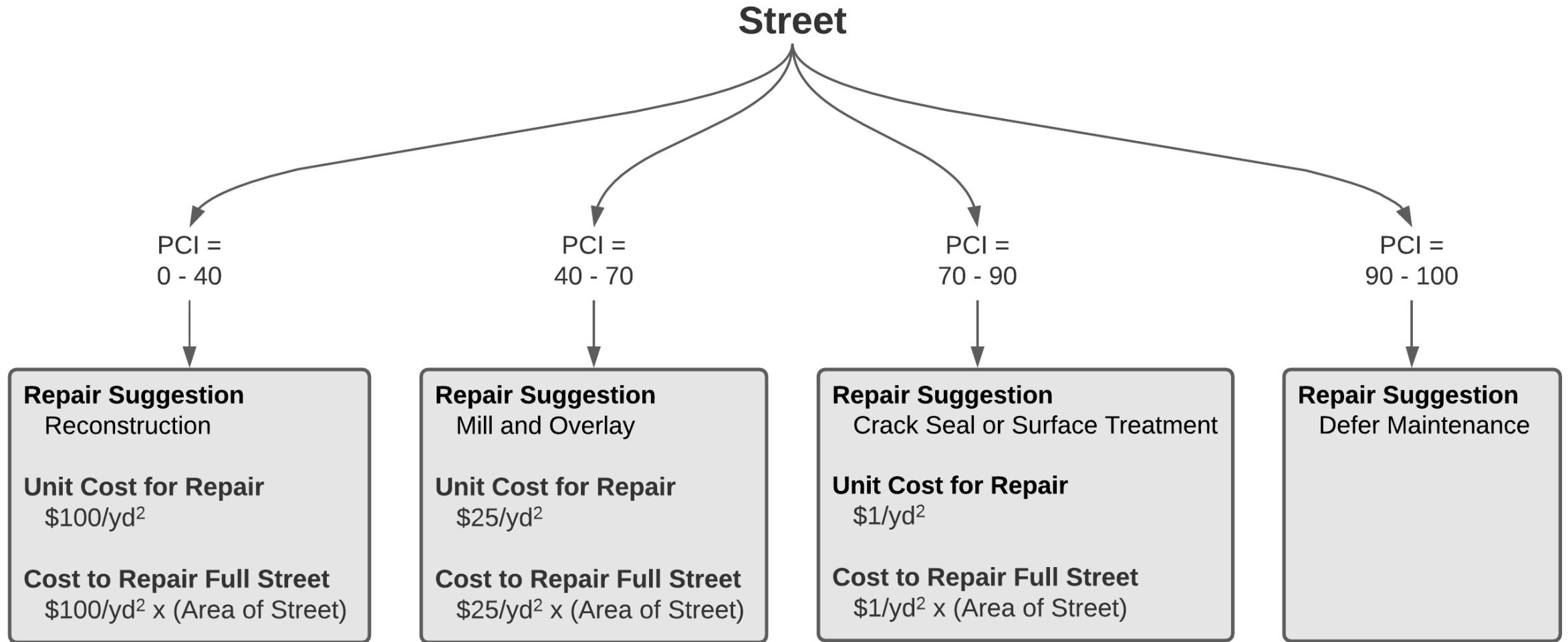
Total Estimated
Backlog: \$27,665,560





Methodology for Repair Suggestions and Costs

Example Repair Decision Tree



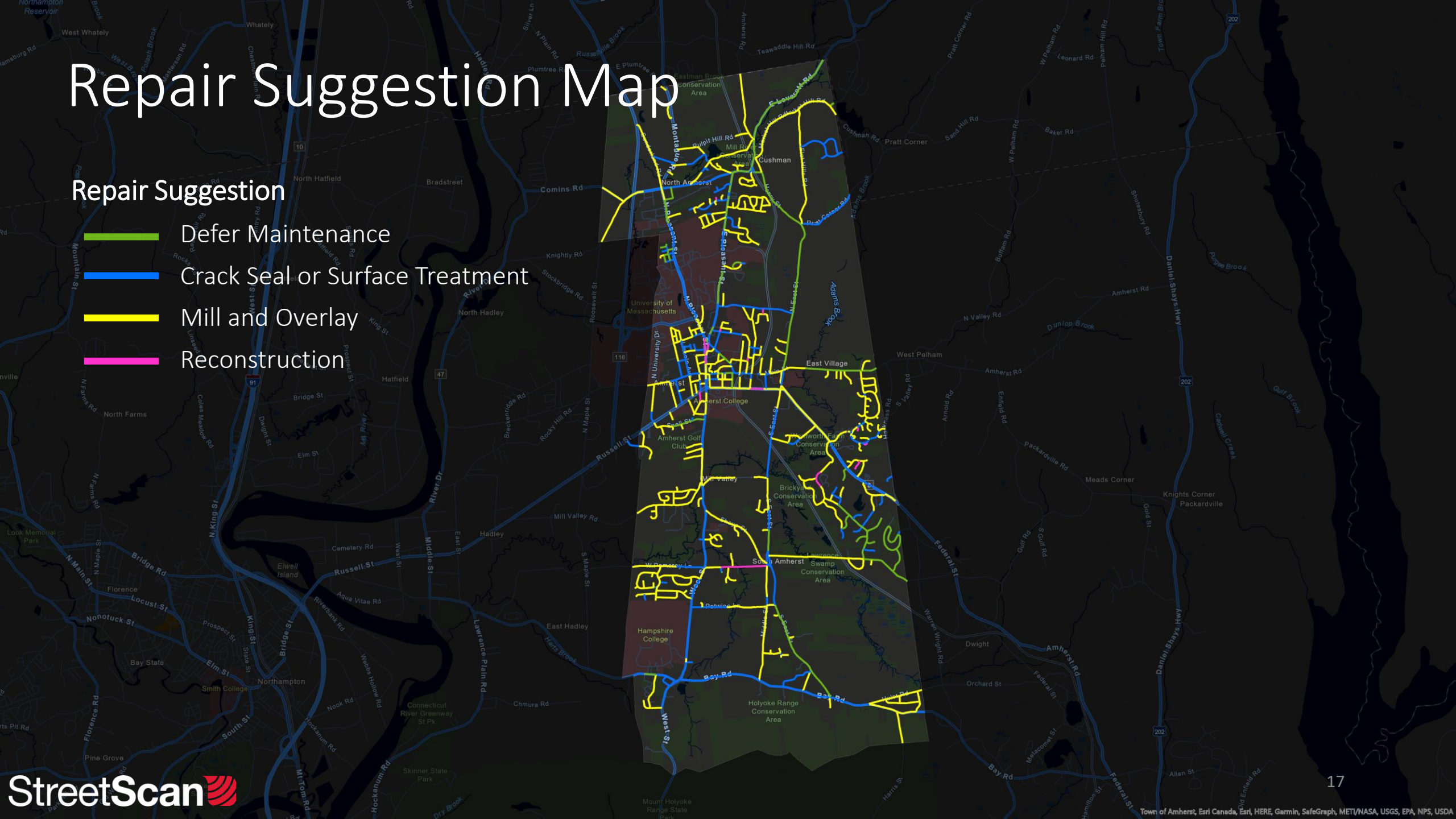
Repair Suggestion Table

Row	Street Name	From Street Name	To Street Name	Length	PCI	Repair Suggestion	Repair Cost
1	UNIVERSITY DR	AMITY ST & N UNIVERSITY DR	NORTHAMPTON RD	821 ft	74	Crack Seal or Surface Treatment	\$2,552
2	MOUNTAIN VIEW CIR	WEST ST	END	452 ft	75	Crack Seal or Surface Treatment	\$1,154
3	BLACKBERRY LN	GRANTWOOD DR	SACCO DR	462 ft	46	Mill and Overlay	\$38,462
4	FARVIEW WAY	FAIRFIELD ST	BERKSHIRE TER	266 ft	95	Defer Maintenance	\$0
5	WEST ST	W BAY RD	LANNON LN	470 ft	80	Crack Seal or Surface Treatment	\$1,565
6	HEATHERSTONE RD	BIRCHCROFF LN	PEBBLE RIDGE RD	411 ft	56	Mill and Overlay	\$29,654
7	CHESTNUT ST	COTTAGE ST	EAMES PL	747 ft	73	Crack Seal or Surface Treatment	\$1,824
8	THISTLE LN	STONY HILL RD	END	310 ft	38	Reconstruction	\$68,820
:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:
732	PELHAM RD	POET'S CORNER	THAYER ST	588 ft	98	Defer Maintenance	\$0

Repair Suggestion Map

Repair Suggestion

- Defer Maintenance
- Crack Seal or Surface Treatment
- Mill and Overlay
- Reconstruction



Worst Roads as of Spring 2022 (PCI <41)

Street Name	From Street Name	To Street Name	PCI	SY Cost	Rough Cost
STONY HILL RD	83 STONY HILL RD	91 STONY HILL RD	30	\$15.00	\$17,333.33
OLD FARM RD	CROSS BROOK	PINE GROVE	31	\$15.00	\$58,333.33
POMEROY LN	WEST ST	MIDDLE ST	32	\$60.00	\$666,666.67
NORTH PLEASANT ST	E PLEASANT ST & HALLOCK ST	TRIANGLE ST	34		Redesign in Progress
NORTH PLEASANT ST	KELLOGG AVE	E PLEASANT ST & HALLOCK ST	34		Sewer Work
COLLEGE ST	S WHITNEY ST	ASPEN CHASE	35	\$50.00	\$722,222.00
EAST PLEASANT ST	PRAY ST	TRIANGLE ST	37		on hold
COTTAGE ST	CHESTNUT ST	EAMES AVE	38	\$15.00	\$22,000.00
WOODSIDE AVE	NORTHAMPTON RD	WALNUT ST	38	\$15.00	\$22,000.00
THISTLE LN	STONY HILL RD	END	38	\$50.00	\$34,444.44
EDGEHILL PL	LOGTOWN RD	END	39	\$15.00	\$22,233.33
MAPLEWOOD DR	STRONG ST	MAPLEWOOD CIR	39	\$15.00	\$18,750.00
BELLVIEW CIR	ROLLING RIDGE RD	END	39	\$15.00	\$9,033.33
HIGH ST	TAYLOR ST	CLIFTON AVE	39	\$0.00	Sewer & Drain Work
FARMINGTON RD	APPLEWOOD LN	PONDVIEW DR	40	\$15.00	\$116,666.67
SALEM ST	MAIN ST & WATSON FARMS	SALEM PL	40	\$15.00	\$39,416.67
KENDRICK PL	NORTHAMPTON RD	END	40		On hold Mass DOT
MARKET HILL RD	FLAT HILLS RD	JANUARY HILLS RD	40	\$15.00	\$102,633.33
HICKORY LN	LAUREL LN	END	40	\$15.00	\$26,416.67
OAK KNOLL	HEATHERSTONE RD	END	40	\$40.00	\$71,360.00
Total Worst First Estimated Cost					\$1,949,509.77

Roads Resurfaced in the last 6 years

Year	Street Name	From	To	Treatment	Ave. Width (FT)	Length (FT)	Total Area (SY)	SY Cost	COST
2021	Northeast St	Main St	Strong St	FDR Asph Inj w/3" + 2"	34	3650	13789	\$40.64	\$560,447.50
2021	Station Rd	Wildflower Dr	Belchertown Town Line	FDR Asph Inj w/3" + 2"	24	3650	9733	\$40.66	\$395,805.25
2021	Henry St	House 690 Northeast St	Pine St	FDR Asph Inj w/3" + 2"	24	6500	17333	\$35.05	\$607,463.00
2021	Pine St	Henry St	Cushman Market	FDR Asph Inj w/3" + 2"	24	600	1600	\$54.82	\$87,713.50
2021	Bridge St	Pine St	Bridge Crossing	FDR Asph Inj w/3" + 2"	30	1900	6333	\$29.07	\$184,081.00
2021	Snell St	South Pleasant	Norwottuck Bridge	FDR Asph Inj w/3" + 2"	24	3300	8800	\$24.82	\$218,405.00
						3.71	Miles		\$2,053,915.25
2020	Wildflower Dr	Tanglewood Dr	Station Rd	FDR w/3" Binder 1.5" Top	26	4600	13,289	\$37.70	\$500,932.61
2020	Southeast St	Potwine Ln	Bay Rd	2" Overlay	24	7345	19,587	\$12.60	\$246,728.18
2020	Pelham Rd	Main St (Bridge)	Pelham Town Line	2" Mill and Fill	24	4,640	12,373	\$18.53	\$229,308.51
2020	Trillium Way	Wildflower Dr	Cul-de-sac	1.5" Top	24	1,600	4,267	\$8.09	\$34,536.52
2020	Foxglove Ln	Wildflower Dr	Cul-de-sac	1.5" Top	24	1,000	2,667	\$9.02	\$24,041.24
2020	Indian Pipe Ln	Wildflower Dr	Cul-de-sac	1.5" Top	24	800	2,133	\$7.67	\$16,366.85
2020	Alyssum Ln	Wildflower Dr	Cul-de-sac	1.5" Top	24	1,000	2,667	\$8.27	\$22,063.83
						3.97	Miles		\$1,073,977.74
2019	Southeast St	Town Green	Village Apartments	CIR	22	9800	23,956	\$18.72	\$448,503.95
2019	East Pleasant St	Eastman Ln	Clark Hill Rd	1.5" Mill and Fill	29	3685	11,874	\$19.84	\$235,572.11
2019	Main St	Boltwood Ave	Dickinson St	M & O	33	1,700	6,233	\$48.38	\$301,595.60
2019	North Pleasant St	Northvillage Dr	Fisher St	1.5" Mill and Fill	27	1,700	5,100	\$24.61	\$125,526.30
2019	West Bay Rd	Spencer Dr	Rambling Rd	FDR w/ asph inj	32	1,300	4,622	\$54.11	\$250,114.25
2019	Larkspur Dr	Wildflower Dr	Larkspur Dr Private	FDR w/ in-house binder	27	1,400	4,200	\$13.89	\$58,321.75
2019	Trillium Way	Wildflower Dr	Cul-de-sac	FDR w/ in-house binder/Palmer Berm	24	1,600	4,267	\$7.44	\$31,726.25
2019	Foxglove Ln	Wildflower Dr	Cul-de-sac	FDR w/ in-house binder/Palmer Berm	24	1,000	2,667	\$8.21	\$21,900.51
2019	Indian Pipe Ln	Wildflower Dr	Cul-de-sac	FDR w/ in-house binder/Palmer Berm	24	800	2,133	\$9.15	\$19,521.51
2019	Alyssum Ln	Wildflower Dr	Cul-de-sac	FDR w/ in-house binder/Palmer Berm	24	1,000	2,667	\$8.21	\$21,880.51
						4.54	Miles		\$1,514,662.74

Roads Resurfaced in the last 6 years

Year	Street Name	From	To	Treatment	Ave. Width (FT)	Length (FT)	Total Area (SY)	SY Cost	COST
2018	East Pleasant St	Pine St	Eastman Ln	FDR w/Asph Inj	33.000	5,200	19,067	\$36.70	\$699,765.00
2018	E.Pleas & Triangle Roundabout	Triangle and East Pleasant	East Pleasant and North Pleasant	FDR/New Const		1,600	8,056	\$86.72	\$698,576.50
2018	Dickinson St	College St	Main St	FDR+parking+SW+berm	30.000	1,000	3,333	\$72.62	\$242,056.75
2018	North Pleasant St	University Dr	Eastman Ln	in house 2" Overlay	28.000	3,600	11,200	\$8.87	\$99,302.40
2018	East Leverett Rd	Bridge St	Leverett Town Line	In-House 2" Overlay	24.000	6,200	16,533	\$10.34	\$171,020.80
						3.33	Miles		\$1,910,721.45
2017	Amity St	South Prospect	North Pleasant	Mill & Overlay+Raised Xwalk	57.000	487.00	3,084	\$30.03	\$92,621.19
2017	North East St	House 690	Strong Street	FDR w/Asph Inj	27.0	4,675	14,025	\$36.27	\$508,665.17
2017	Ladyslipper Cir	Wildflower Dr	Cul-de-sac	FDR+Berm	22.0	800	1,956	\$30.72	\$60,073.43
2017	Larkspur Dr	Wildflower Dr	Cul-de-sac	FDR+berm	24.0	750	2,000	\$32.23	\$64,454.54
2017	Woodlot Rd	Teaberry Lane	Cul-de-sac	FDR+berm	22.0	900	2,200	\$28.40	\$62,482.20
2017	Teaberry Ln	Woodlot Rd	Wildflower Dr	FDR+SW+Berm	22.0	1,200	2,933	\$44.11	\$129,385.26
2017	Fisher St	North Pleasant St	Harris St	FDR+Ramps	21.7	600	1,447	\$27.85	\$40,288.00
2017	Harris St	Pine St	Fisher St	FDR	21.0	750	1,750	\$22.87	\$40,018.00
2017	Mount Pleasant St	East Pleasant St	End	FDR+berm	19.0	820	1,731	\$26.57	\$45,988.50
2017	Shumway St	Main St	College St	FDR+SW+Berm	23.0	960	2,453	\$82.08	\$201,363.29
						2.26	Miles		\$1,245,339.58
2016	Highpoint Dr	Flat Hills Rd	Town Line	FDR	24	3603	9,608	\$25.03	\$240,487.47
2016	Overlook Dr	Highpoint Dr	Highpoint Dr	FDR	24	1,850	4,933	\$23.40	\$115,420.85
2016	Juniper Ln	Highpoint Dr	Cul-de-sac	FDR	24	630	1,680	\$22.86	\$38,400.06
2016	Harkness Rd	Dayton Ln	Stoney Hill Rd	FDR	23	3,400	8,689	\$23.84	\$207,147.29
2016	Pine St	North Pleasant St	Rail Road Tracks	2.5" Top +Ramps	24	6,349	16,931	\$14.74	\$249,519.89
2016	Cowls Rd	Sunderland Rd	Montague Rd	FDR	24	1,473	3,928	\$22.76	\$89,383.74
2016	East Pleasant St	University Motor Lodge	Clark Hill Rd	Mill & Overlay UTBWC	35	2,500	9,722	\$15.84	\$154,037.50
						3.75	Miles		\$1,094,396.80

Road Work for 2022 and 2023

- Road Rehabilitation and Reconstruction 2022
- Preventative Maintenance 2022
- Sidewalk Replacement 2022
- Other Grant Funded
- Road Rehabilitation and Reconstruction 2023
- Preventative Maintenance 2023

2022 Road Rehabilitation and Reconstruction

Street Name	From Street Name	To Street Name	PCI	Maintenance Suggestion	Width (ft)	Length (ft)	Area (sy)	SY Cost	Cost Estimate
Bay Road	Hulst	Town line	46	Injected Reclaim + 5"	31	4040	13920	\$61.28	\$853,000.00
East Hadley Rd	West St	Town line	50	2" Mill and Fill	34	5300	20100	\$21.34	\$429,000.00
Leverett Rd	Bridge St	Town line	42	2" HMA overlay	23	4580	11700	\$20.00	\$234,000.00
Meadow St	Russellville Rd	Town line	50	2" HMA overlay	23	3310	8460	\$22.46	\$190,000.00
Russellville	Meadow St	Town line	42	2" HMA overlay	22	1730	4230	\$28.84	\$122,000.00
Pulpit Hill	Leverett Rd	Ruxtons	45	2" HMA overlay	22	820	2000	\$25.00	\$50,000.00
Harris Mountain	Bay Rd	Town line	42	2" HMA overlay	19	2135	4500	\$24.89	\$112,000.00
Kellogg Ave	North Pleasant	House 44 (Road Bend)	44	1.5" Mill and Fill	23	680	1740	\$34.48	\$60,000.00
Pomeroy Ln	West St	Middle St	34	New HMA walks & Injected Reclaim + 5"	24	4160	11100	\$91.89	\$1,020,000.00
Total Estimated Cost					5.06 Miles Treated			\$3,070,000.00	

***Work to be added in as optional item based on actual bid cost and available funds

2022 Preventative-Crack Sealing Plan

Street Name	From Street Name	To Street Name	PCI	Maintenance Suggestion	Width (ft)	Length (ft)	Area (sy)	SY Cost	Cost Estimate
South Pleasant St/West St	College St	Hamp College Ent	73 to 61	PCRM Crack Seal	33	18500	68000	\$0.44	\$29,920.00
Dennis Drive	West St	End	66	PCRM Crack Seal	25	1220	3400	\$0.44	\$1,496.00
Bay Rd	Roundabout	Hulst Rd	80	PCRM Crack Seal	34	13200	50000	\$0.44	\$22,000.00
Southeast St	Mill Ln	Bay Rd	75 to 64	PCRM Crack Seal	27	16700	50100	\$0.44	\$22,044.00
Main St	Southeast St	Boltwood Ave	91 to 56	PCRM Crack Seal	34	4500	18400	\$0.44	\$8,096.00
Stony Hill	Aubinwood Rd	Harkness Rd	72 to 60	PCRM Crack Seal	28	4600	14300	\$0.44	\$6,292.00
Strong St	East Pleasant St	Northeast St	82	PCRM Crack Seal	30	5200	17400	\$0.44	\$7,656.00
Olympia Dr	East Pleasant St	End	67	PCRM Crack Seal	32	1410	5000	\$0.44	\$2,200.00
Total Estimated Cost					12.37 Miles Treated			\$99,704.00	

Polymer and Crumb Rubber Modified (PCRM) Crack Seal

2022 Sidewalk Replacement Plan

Street Name	From Street Name	To Street Name	PCI	Maintenance Suggestion	Width (ft)	Length (ft)	Area (sy)	SY Cost	Cost Estimate
Taylor St	Mattoon St	High St		R & R HMA walk	6	930	620	\$101.68	\$63,038.78
Gray St	Taylor St	Main St		R & R HMA walks (Both Sides)	6	1155	770	\$98.61	\$75,930.67
McClellan St	Lincoln Ave	North Pleasant St		R & R HMA walk	5	1300	730	\$111.97	\$81,737.78
Amity St	Lincoln Ave	North Prospect St		R & R HMA walks (Both Sides)	6	1400	940	\$133.52	\$125,512.41
Chestnut St	East Pleasant St	Middle School		R & R HMA walk	5	2000	1150	\$93.26	\$107,254.07
Total Estimated Cost					1.29 Miles Treated			\$453,473.70	

Community Development Block Grant (CDBG) Funded Projects

Street Name	From Street Name	To Street Name	PCI	Maintenance Suggestion	Width (ft)	Length (ft)	Area (sy)	SY Cost	Cost Estimate
*Mill Ln	West St	Groff Park Entrance	43	Multi-use Path & Injected Reclaim + 4"	24	850	4740	\$109.70	\$520,000.00
**Kellogg Ave	North Pleasant	House 44 (Road Bend)	44	R&R sidewalks & ADA ramps	23	680	1740	\$99.43	\$173,000.00
Total Estimated Cost					.29 Miles Treated			\$693,000.00	

*\$67,000 needed from General Fund to cover the Total Cost

**Waiting for Final Grant Approval

Mass Works Grant Funded Projects

Street Name	PCI	Maintenance Suggestion	Cost Estimate
West St and Pomeroy Ln Intersection	61	Replace Signals with Roundabout	\$1,500,000.00

2023 Road Rehabilitation and Reconstruction

Street Name	From Street Name	To Street Name	PCI	Maintenance Suggestion	Width (ft)	Length (ft)	Area (sy)	SY Cost	Cost Estimate
College St	South Pleasant	Southeast St	35	2" Mill and Fill	26	5000	14444	\$45.00	\$650,000.00
Stony Hill Rd	83 Stony Hill	End	30	2" HMA overlay	26	400	1155	\$27.71	\$32,000.00
Old Farm Rd	Pine Grove	Crossbrook	31	2" HMA overlay	25	1400	3888	\$20.83	\$81,000.00
Cottage St	Chestnut	Morrow Ln	38	2" HMA overlay	20	660	1466	\$27.97	\$41,000.00
Woodside Ave	Northampton Rd	Hitchcock	38	2" HMA overlay	20	660	1466	\$36.83	\$54,000.00
Thistle Ln	Stony Hill	End	38	Full Depth reclaim + 4"	20	310	688	\$71.22	\$49,000.00
Edgehill Pl	Logtown Rd	End	39	2" HMA overlay	20	667	1482	\$22.94	\$34,000.00
Maplewood Dr	Strong St	Maplewood Cir	39	2" HMA overlay	30	375	1250	\$24.80	\$31,000.00
Bellview Cir	Rolling Ridge Rd	End	39	2" HMA overlay	20	271	602	\$38.21	\$23,000.00
Farmington Rd	Applewood Ln	Pondview Dr	40	2" HMA overlay	28	2500	7777	\$20.06	\$156,000.00
Salem St	Main St	End	40	2" HMA overlay	22	1075	2627	\$24.36	\$64,000.00
Market Hill Rd	Flat Hills	Townline	40	2" HMA overlay	20	3079	6842	\$18.71	\$128,000.00
Hickory Ln	Laurel Ln	End	40	2" HMA overlay	25	634	1761	\$28.96	\$51,000.00
Oak Knoll	Heatherstone	End	40	Full Depth reclaim + 4"	24	669	1784	\$71.19	\$127,000.00
Total Estimated Cost					3.35 Miles Treated			\$1,521,000.00	

2023 Preventative Maintenance

Street Name	From Street Name	To Street Name	PCI	Maintenance Suggestion	Width (ft)	Length (ft)	Area (sy)	SY Cost	Cost Estimate
University Drive	Northampton Rd	Paving joint @ USPS	74	PCRM Crack Seal	30	870	5700	\$1.10	\$6,270.00
Dana Street	Northampton Rd	Amity St	79	PCRM Crack Seal	21	1600	3700	\$1.10	\$4,070.00
Columbia Drive	Hunter Hill Cir	East Hadley Rd	65 to 49	PCRM Crack Seal	27	2700	8100	\$1.10	\$8,910.00
McClellan Street	North Pleasant St	Lincoln Ave	74 to 66	PCRM Crack Seal	17	1400	2700	\$1.10	\$2,970.00
Beston Street	McClellan St	End	79	PCRM Crack Seal	18	500	1000	\$1.10	\$1,100.00
Cowls Road	Sunderland Rd	Montague Rd	84	PCRM Crack Seal	22	1480	3600	\$1.10	\$3,960.00
Sunderland Rd	North Pleasant St	Route 116	69 to 58	PCRM Crack Seal	24	4400	11800	\$1.10	\$12,980.00
Amity St	South Pleasant	University Dr	77 to 46	PCRM Crack Seal	40	3500	15600	\$1.10	\$17,160.00
Shays St	South Pleasant	Middle ST	60 to 53	PCRM Crack Seal	24	5900	15800	\$1.10	\$17,380.00
Lincoln Ave	Amity St	Fearing St	79	PCRM Crack Seal	20	2300	5200	\$1.10	\$5,720.00
Sunset Ave	Amity St	Fearing St	68	PCRM Crack Seal	20	2300	5200	\$1.10	\$5,720.00
Orchard St	Northampton Rd	Hitchcock Rd	65	PCRM Crack Seal	22	1000	2500	\$1.10	\$2,750.00
Mechanic St	Bay Rd	Southeast St	68	PCRM Crack Seal	22	1500	3700	\$1.10	\$4,070.00
Chapel Rd	Bay Rd	Mechanic St	76	PCRM Crack Seal	22	2300	5700	\$1.10	\$6,270.00
Total Estimated Cost					6.01 Miles Treated			\$99,330.00	

Polymer and Crumb Rubber Modified (PCRM) Crack Seal

Questions or Comments?



Mill River Basket Ball Court Paving